Chemical/Biological Terrorism
February 2005

1: Acta Psychiatr Scand. 2005 Mar;111(3):253.
Bioterrorism: psychological and public health interventions.
Sher L.
PMID: 15701113 [PubMed - in process]

2: Ann Fam Med. 2004 Sep-Oct;2(5):438-44.
The primary care differential diagnosis of inhalational anthrax.
Temte JL, Zinkel AR.
Department of Family Medicine, University of Wisconsin Medical School, Madison, Wis 53715, USA. jtemte@wingra.fammed.wisc.edu
PURPOSE: Inhalational anthrax is an extremely rare infectious disease with nonspecific initial symptoms, thus making diagnosis on clinical grounds difficult. After a covert release of anthrax spores, primary care physicians will be among the first to evaluate cases. This study defines the primary care differential diagnosis of inhalational anthrax. METHODS: In May 2002, we mailed
survey instruments consisting of 3 randomly chosen case vignettes describing patients with inhalational anthrax to a nationwide random sample of 665 family physicians. Nonrespondents received additional mailings. Physicians were asked to provide their most likely nonanthrax diagnosis for each case. RESULTS: The response rate was 36.9%. Diagnoses for inhalational anthrax were grouped into 35 diagnostic categories, with pneumonia (42%), influenza (10%), viral syndrome (9%), septicemia (8%), bronchitis (7%), central nervous system infection (6%), and gastroenteritis (4%) accounting for 86% of all diagnoses. Diagnoses differed significantly between cases that proved to be fatal and those that proved to be nonfatal. CONCLUSIONS: Inhalational anthrax resembles common diagnoses in primary care. Surveillance systems for early detection of bioterrorism events that rely only on diagnostic codes will be hampered by false-positive alerts. Consequently, educating frontline physicians to recognize and respond to bioterrorism is of the highest priority.
Publication Types: Clinical Trial Randomized Controlled Trial
PMID: 15506578 [PubMed - indexed for MEDLINE]

3: Ann Fam Med. 2004 Sep-Oct;2(5):434-7.
Rapid assessment of agents of biological terrorism: defining the differential diagnosis of inhalational anthrax using electronic communication in a practice-based research network.
Temte JL, Anderson AL.
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PURPOSE: Early detection of bioterrorism requires assessment of diagnoses assigned to cases of rare diseases with which clinicians have little experience. In this study, we evaluated the process of defining the differential diagnosis for inhalational anthrax using electronic communication within a practice-based research network (PBRN) and compared the results with those obtained from a nationwide random sample of family physicians with a mailed instrument. METHODS:
We distributed survey instruments by e-mail to 55 physician members of the Wisconsin Research Network (WReN), a regional PBRN. The instruments consisted of 3 case vignettes randomly drawn from a set describing 11 patients with inhalational anthrax, 2 with influenza A, and 1 with Legionella pneumonia. Physicians provided their most likely nonanthrax diagnosis, along with their responses to 4 yes-or-no management questions for each case. Physicians who had
not responded at 1 week received a second e-mail with the survey instrument. The comparison group consisted of the nationwide sample of physicians who completed mailed survey instruments. Primary outcome measures were response rate, median response time, and frequencies of diagnostic categories assigned to cases of inhalational anthrax. RESULTS: The PBRN response rate compared favorably with that of the national sample (47.3% vs 37.0%; P = not significant). The median response time for the PBRN was significantly shorter than that for the national sample (2 vs 28 days; P < .001). No significant differences were found between the PBRN and the Midwest subset of the national sample in the frequencies of major diagnostic categories or in case management. CONCLUSIONS: Electronic means of creating differential diagnoses for rare infectious diseases of national significance is feasible within PBRNs. Information is much more rapidly acquired and is consistent with that obtained by conventional methods.
Publication Types: Clinical Trial Randomized Controlled Trial
PMID: 15506577 [PubMed - indexed for MEDLINE]

4: Arch Gen Psychiatry. 2005 Jan;62(1):15-8.
Gassed.
Harris JC.
Publication Types: Historical Article
PMID: 15630068 [PubMed - indexed for MEDLINE]

5: Biosecur Bioterror. 2004;2(4):294-300.
Challenges in managing volunteers during bioterrorism response.
Clizbe JA.
Health Department, Alexandria, Virginia 22314, USA. John.clizbe@verizon.net
PMID: 15650439 [PubMed - in process]

6: Biosecur Bioterror. 2004;2(3):233; author reply 234.
Comment on:
Biosecur Bioterror. 2004;2(2):81-5.
The Sunshine Project.
Hammond E.
Publication Types: Comment Letter
PMID: 15588064 [PubMed - indexed for MEDLINE]

7: Biosecur Bioterror. 2004;2(3):232.
Comment on:
Biosecur Bioterror. 2004;2(1):41-5.
Behavioral health aspects of bioterrorism.

Flynn BW.
Publication Types: Comment Letter
PMID: 15588063 [PubMed - indexed for MEDLINE]

8: Biosecur Bioterror. 2004;2(3):224-8.
Chemical (VX) terrorist threat: public knowledge, attitudes, and responses.
Henderson JN, Henderson LC, Raskob GE, Boatright DT.
Department of Health Promotion Sciences College of Public Health, University of Oklahoma Health Sciences Center, Oklahoma City, OK 73190, USA.
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This article reports the results of a study of people's perceptions and reactions to a hypothetical terrorist attack involving a chemical agent (specifically, the nerve agent VX). Thirteen focus groups composed of 8 to 12 participants each were conducted using trained moderators. To achieve a broad representation of perspectives, the groups were conducted in several regions and included urban and rural locations. In addition, a variety of population groups, such as African Americans, Hispanics, American Indians, Asians, and people with English as a second language, were included in the study. Findings demonstrated fear, fatalism, and unfulfilled information needs related to the threat agent. To better prepare the public for VX threats or threats from other highly toxic chemical agents, it will be important to emphasize that VX exposure can be
avoided or reduced, that VX effects can be treated, and that VX can be survived if appropriate protective measures are taken. Related findings from the focus groups are that participants preferred television, radio, and the Emergency Alert System for emergency messages and that people prefer to hear information about a chemical attack from a well-known, well-respected public figure or from a content expert on chemical attacks, protective actions, and health. In addition, local television meteorologists were identified as a category of trusted conveyers of important information in relation to chemical terrorist attacks.
PMID: 15588061 [PubMed - indexed for MEDLINE]

9: Biosecur Bioterror. 2004;2(3):216-23.
Public perceptions and risk communications for botulism.
Glik D, Harrison K, Davoudi M, Riopelle D.
Department of Community Health Sciences, UCLA School of Public Health, Health and Media Research Group, Los Angeles, California 90095-17722, USA.
dglik@ucla.edu
Formative research findings from 10 focus group interviews on botulism are described. Data were collected from a diverse sample of people throughout the United States in 2003, as part of a collaborative multisite initiative sponsored by the Centers for Disease Control and Prevention to improve communications materials on bioterrorism agents. Focus group guides included questions on knowledge, action, emotions, and information seeking in response to a series of
scenarios on a hypothetical terrorist attack using botulinum toxin. Data were collected, transcribed, coded, and analyzed using content domains based on risk and health communications theories. Initial participant responses to scenarios were emotional, changing into immediate health and survival concerns conceptualized as information specific to the agent and event. Knowledge about botulism was low, and participants wanted clear, concise, and actionable
messages. Broadcast media, the internet, and community-based sources were cited as sources of information. Findings have implications for botulism preparedness messages and for general public risk communications.

PMID: 15588060 [PubMed - indexed for MEDLINE]

10: Biosecur Bioterror. 2004;2(3):208-15.
What does the public want to know in the event of a terrorist attack using plague?
Wray R, Jupka K.
Health Communication Research Laboratory, School of Public Health, Saint Louis University, Saint Louis, Missouri 63104, USA. wray@slu.edu
We used formative research to assess the information needs and information-seeking strategies with general public audience segments in response to a hypothetical attack using plague, and we pretested informational materials about plague. Twelve focus groups were conducted across the country, with 129 individuals being purposively sampled by ethnicity and place of residence.
Across groups, participants wanted to understand: the nature of the threat of plague, how to protect themselves from transmission, how to detect exposure and symptoms, how to treat infection, and progress in apprehending perpetrators. Participants reported that they would seek information from both the news media and local authorities. Based on the findings and the challenges posed by a terrorist attack using plague, the authors recommend that message materials answer key questions, provide clear action steps, be clear and easily understood, include sources for credibility, and reflect full government disclosure. A dissemination plan is required to ensure that critical information will be available when people need it and where they look.
PMID: 15588059 [PubMed - indexed for MEDLINE]

11: Biosecur Bioterror. 2004;2(3):193-4.
Breaking new ground in WMD risk communication: the pre-event message development project.
Vanderford ML.
Office of Communication, U.S. Centers for Disease Control and Prevention, Atlanta, Georgia 30333, USA.
PMID: 15588057 [PubMed - indexed for MEDLINE]

12: Biosecur Bioterror. 2004;2(3):186-91.
Marburg and Ebola viruses as aerosol threats.
Leffel EK, Reed DS.
Center for Aerobiological Sciences, U.S. Army Medical Research Institute of Infectious Diseases, Fort Detrick, Frederick, Maryland 21702-5011, USA.
Ebola and Marburg viruses are the sole members of the genus Filovirus in the family Filoviridae. There has been considerable media attention and fear generated by outbreaks of filoviruses because they can cause a severe viral hemorrhagic fever (VHF) syndrome that has a rapid onset and high mortality. Although they are not naturally transmitted by aerosol, they are highly
infectious as respirable particles under laboratory conditions. For these and other reasons, filoviruses are classified as category A biological weapons. However, there is very little data from animal studies with aerosolized filoviruses. Animal models of filovirus exposure are not well characterized, and there are discrepancies between these models and what has been observed in human outbreaks. Building on published results from aerosol studies, as well as a review of the history, epidemiology, and disease course of naturally occurring outbreaks, we offer an aerobiologist's perspective on the threat posed by aerosolized filoviruses.
PMID: 15588056 [PubMed - indexed for MEDLINE]

13: Biosecur Bioterror. 2004;2(3):164-74.
Responsibility in the life sciences: assessing the role of professional codes.
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In response to threats from bioweapons, questions are being asked today in some countries about the implications and appropriateness of biological research. Many organizations and governments have suggested that bioscientists adopt what is generally referred to as a "code of conduct" to reduce the security concerns associated with their work. This article examines the potential contribution of such codes. By drawing on past lessons in other areas of professional life, it suggests some key questions, issues, and dilemmas for future consideration. As argued, attempts to establish codes must address demanding questions about their aims and audience--questions whose answers depend on potentially contentious issues regarding arms control, science, ethics, and politics.
PMID: 15588054 [PubMed - indexed for MEDLINE]

14: Biosecur Bioterror. 2004;2(3):146-56.
Will public health's response to terrorism be fair? Racial/ethnic variations in perceived fairness during a bioterrorist event.
Eisenman DP, Wold C, Setodji C, Hickey S, Lee B, Stein BD, Long A.
RAND Corporation, Santa Monica, CA 90407-2138, USA.
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OBJECTIVES: Public health departments' effectiveness during catastrophic bioterrorism will require trust on the part of diverse communities. This study describes variations in perceptions that the public health system will respond fairly to one's needs in a bioterrorist event, regardless of race/ethnicity, income, or other characteristics. METHODS: Using the Los Angeles County Health Survey, a random-digit, population-based, telephone survey, we conducted multivariate logistic regression of race/ethnicity on perceived fairness, adjusting for demographic factors and perceived neighborhood safety. We performed similar analyses stratified by race/ethnicity subgroup. RESULTS: Overall, 72.7% of respondents perceived that the public health system will respond fairly in a bioterrorist event. African Americans (AA) and Asian/Pacific Islanders (API) reported the lowest perceived fairness (AA 63.0%, API 68.2%, Latino 73.1%, White 76.6%, p = 0.005 for group differences). Adjusting for demographic factors and neighborhood safety, African Americans had lower perceived fairness compared to whites (adjusted odds ratio, aOR 0.45; 95% confidence intervals, CI 0.26-0.79; p < 0.005). Other factors associated with lower perceived fairness included Asian-language compared to English-language interview (aOR 0.29; 95% CI 0.11-0.76; p < 0.05) and lower compared to higher neighborhood safety (aOR 0.48; 95% CI 0.31-0.74; p < 0.005). Among African Americans, participants aged 18-29 years were less likely to report perceived fairness (aOR 0.06; 95% CI 0.01-0.59) compared to participants older than 60 years of age. Among Asian/Pacific Islanders, Asian-language interview (aOR 0.07; 95% CI 0.01-0.48) and lower perceived neighborhood safety (aOR 0.01; 95% CI <0.01-0.13) were associated with perceived fairness. CONCLUSIONS: To strengthen bioterrorism preparedness, public health officials must continue to improve perceived fairness among African American and Asian/Pacific Islander communities.
PMID: 15588052 [PubMed - indexed for MEDLINE]

15: Biosecur Bioterror. 2004;2(3):141-5.

Philip K. Russell, MD, Acting Director, Office of Research and Development Coordination, Office of the Assistant Secretary for Public Health Emergency Preparedness, U.S. Department of Health and Human Services.
Russell PK.
Office of the Assistant Secretary for Public Health Emergency Preparedness, U.S. Department of Health and Human Services, USA.
Publication Types: Interview
PMID: 15588051 [PubMed - indexed for MEDLINE]

16: Can J Rural Med. 2004 Summer;9(3):178-81.
Experiencing chemical warfare: two physicians tell their story of Halabja in Northern Iraq.
Hawrami SA, Ibrahim N.
Publication Types: Biography Historical Article Interview
Personal Name as Subject: Hawrami SA Ibrahim N
PMID: 15603690 [PubMed - indexed for MEDLINE]

17: Curr Opin Biotechnol. 2004 Jun;15(3):264-8.
Facing the possibility of bioterrorism.
Durodie B.
International Centre for Security Analysis, King's College London, 138-142 Strand, London WC2R 2LS, United Kingdom.
bill.durodie@kcl.ac.uk
The possibility of bioterrorism has been met by significant financial outlays to map out public health responses. These have included comprehensive audits of potential agents, as well as exploring mechanisms for counteracting their impact. Psychological intervention and communication have been identified as key areas requiring further work, as fear of infection could pose a greater strain on social resources than the pathogens themselves. Bioterrorism provides a powerful metaphor for elite fears of social corrosion from within. Accordingly, a broader historical and cultural perspective is required to understand why individuals and societies feel so vulnerable to what remain largely speculative scenarios.
Publication Types: Review Review, Tutorial
PMID: 15193338 [PubMed - indexed for MEDLINE]

18: Eur J Appl Physiol. 2004 Sep;92(6):689-93.
Heat and mass transfer from a baby manikin: impact of a chemical warfare protective bag.
Danielsson U.
Defence Medicine, Swedish Defence Research Agency, Stockholm, Sweden.
ulf.danielsson@foi.se
A chemical warfare (CW) protective bag for babies, younger than 1 year, has been evaluated in respect of thermal load. Heat and water vapour dissipating from the baby make the climate in the protective bag more demanding than outside. The thermal strain on a baby was estimated from heat and mass transfer data using an electrically heated baby manikin and a water-filled tray. Furthermore, a theoretical baby model was developed based on relations valid for heat and mass transfer rates from a cylinder and flat surface. Convective and radiative (dry) and evaporative heat transfer coefficients calculated from this model agreed well with the measured values. The maximum heat dissipation from a baby was calculated for combinations of air temperatures (22-30 degrees C) and relative humidities (70-90%

rh). The results indicate that a naked baby can dissipate about 100% more heat than is produced during basal conditions when the bag is
ventilated (70 1 min(-1)) and the ambient climate is 30 degrees C and 90% rh. If the ventilation rate is 40 1 min(-1), the margin is reduced to 50%. Clothing reduces the margin further. Ventilating the bag with 70 1 min(-1), a dressed baby can dissipate only 10-20% more heat than is produced during basal conditions in a climate (27 degrees C and 80% rh) that is obtained in a crowded shelter after about 24 h of occupation.
PMID: 15150661 [PubMed - indexed for MEDLINE]

19: Euro Surveill. 2004 Dec 01;9(12) [Epub ahead of print]
Bichat guidelines for the clinical management of anthrax and bioterrorism-related anthrax.
Bossi P, Tegnell A, Baka A, van Loock F, Hendriks J, Werner A, Maidhof H, Gouvras G.
Taskforce on Bioterrorism (BICHAT), Public Health Directorate, European Commission, Luxembourg.
The spore-forming Bacillus anthracis must be considered as one of the most serious potential biological weapons. The recent cases of anthrax caused by a deliberate release reported in 2001 in the United States point to the necessity of early recognition of this disease. Infection in humans most often involves the skin, and more rarely the lungs and the gastrointestinal tract. Inhalational
anthrax is of particular interest for possible deliberate release: it is a life-threatening disease and early diagnosis and treatment can significantly decrease the mortality rate. Treatment consists of massive doses of antibiotics and supportive care. Isolation is not necessary. Antibiotics such as
ciprofloxacin are recommended for post-exposure prophylaxis during 60 days.
PMID: 15677848 [PubMed - as supplied by publisher]

20: Euro Surveill. 2004 Dec 01;9(12) [Epub ahead of print]
Bichat guidelines for the clinical management of plague and bioterrorism-related plague.
Bossi P, Tegnell A, Baka A, van Loock F, Werner A, Hendriks J, Maidhof H, Gouvras G.
Taskforce on Bioterrorism (BICHAT), Public Health Directorate, European Commission, Luxembourg.
Yersinia pestis appears to be a good candidate agent for a bioterrorist attack. The use of an aerosolised form of this agent could cause an explosive outbreak of primary plague pneumonia. The bacteria could be used also to infect the rodent population and then spread to humans. Most of the therapeutic guidelines suggest using gentamicin or streptomycin as first line therapy with
ciprofloxacin as optional treatment. Persons who come in contact with patients with pneumonic plague should receive antibiotic prophylaxis with doxycycline or ciprofloxacin for 7 days. Prevention of human-to-human transmission via patients with plague pneumonia can be achieved by implementing standard isolation procedures until at least 4 days of antibiotic treatment have been administered. For the other clinical types of the disease, patients should be isolated for the
first 48 hours after the initiation of treatment.
PMID: 15677847 [PubMed - as supplied by publisher]

21: Euro Surveill. 2004 Dec 01;9(12) [Epub ahead of print]

Bichat guidelines for the clinical management of smallpox and bioterrorism-related smallpox.
Bossi P, Tegnell A, Baka A, van Loock F, Werner A, Hendriks J, Maidhof H, Gouvras G.
Taskforce on Bioterrorism (BICHAT), Public Health Directorate, European Commission, Luxembourg.
Smallpox is a viral infection caused by the variola virus. It was declared eradicated worldwide by the Word Health Organization in 1980 following a smallpox eradication campaign. Smallpox is seen as one of the viruses most likely to be used as a biological weapon. The variola virus exists legitimately in only two laboratories in the world. Any new case of smallpox would have to be
the result of human accidental or deliberate release. The aerosol infectivity, high mortality, and stability of the variola virus make it a potential and dangerous threat in biological warfare. Early detection and diagnosis are important to limit the spread of the disease. Patients with smallpox must be isolated and managed, if possible, in a negative-pressure room until death or until all scabs have been shed. There is no established antiviral treatment for smallpox. The most effective prevention is vaccination before exposure.
PMID: 15677846 [PubMed - as supplied by publisher]

22: Euro Surveill. 2004 Dec 01;9(12) [Epub ahead of print]
Bichat guidelines for the clinical management of tularaemia and bioterrorism-related tularaemia.
Bossi P, Tegnell A, Baka A, van Loock F, Werner A, Hendriks J, Maidhof H, Gouvras G.
Taskforce on Bioterrorism (BICHAT), Public Health Directorate, European Commission, Luxembourg.
ded for post-exposure prophylaxis.
PMID: 15677845 [PubMed - as supplied by publisher]

23: Euro Surveill. 2004 Dec 01;9(12) [Epub ahead of print]
Bichat guidelines for the clinical management of haemorrhagic fever viruses and bioterrorism-related haemorrhagic fever viruses.
Bossi P, Tegnell A, Baka A, van Loock F, Hendriks J, Werner A, Maidhof H, Gouvras G.
Taskforce on Bioterrorism (BICHAT), Public Health Directorate, European Commission, Luxembourg.
d and receive intensive supportive therapy.
PMID: 15677844 [PubMed - as supplied by publisher]

24: Euro Surveill. 2004 Dec 01;9(12) [Epub ahead of print]
Bichat guidelines for the clinical management of botulism and bioterrorism-related botulism.
Bossi P, Tegnell A, Baka A, Werner A, van Loock F, Hendriks J, Maidhof H, Gouvras G.
Taskforce on Bioterrorism (BICHAT), Public Health Directorate, European Commission, Luxembourg.
Botulism is a rare but serious paralytic illness caused by botulinum toxin, which is produced by the Clostridium botulinum. This toxin is the most poisonous substance known. It 100 000 times more toxic than sarin gas. Eating or breathing this toxin causes illness in humans. Four distinct clinical forms are described: foodborne,

wound, infant and intestinal botulism. The fifth form, inhalational botulism, is caused by aerosolised botulinum toxin that could be used as a
biological weapon. A deliberate release may also involve contamination of food or water supplies with toxin or C. botulinum bacteria. By inhalation, the dose that would kill 50% of exposed persons (LD50) is 0.003 microgrammes/kg of body weight. Patients with respiratory failure must be admitted to an intensive care unit and require long-term mechanical ventilation. Trivalent equine antitoxins (A,B,E) must be given to patients as soon as possible after clinical diagnosis.
Heptavalent human antitoxins (A-G) are available in certain countries.
PMID: 15677843 [PubMed - as supplied by publisher]

25: Euro Surveill. 2004 Dec 01;9(12) [Epub ahead of print]
Bichat guidelines for the clinical management of brucellosis and bioterrorism-related brucellosis.
Bossi P, Tegnell A, Baka A, van Loock F, Hendriks J, Werner A, Maidhof H, Gouvras G.
Taskforce on Bioterrorism (BICHAT), Public Health Directorate, European Commission, Luxembourg.
evidence to support its utility for post-exposure prophylaxis, doxycycline plus rifampicin is recommended for 3 to 6 weeks.
PMID: 15677842 [PubMed - as supplied by publisher]

26: Euro Surveill. 2004 Dec 01;9(12) [Epub ahead of print]
Bichat guidelines for the clinical management of glanders and melioidosis and bioterrorism-related glanders and melioidosis.
Bossi P, Tegnell A, Baka A, van Loock F, Hendriks J, Werner A, Maidhof H, Gouvras G.
Taskforce on Bioterrorism (BICHAT), Public Health Directorate, European Commission, Luxembourg.
Glanders and melioidosis are two infectious diseases that are caused by Burkholderia mallei and Burkholderia pseudomallei respectively. Infection may be acquired through direct skin contact with contaminated soil or water. Ingestion of such contaminated water or dust is another way of contamination. Glanders and melioidosis have both been studied for weaponisation in several countries in the past. They produce similar clinical syndromes. The symptoms depend upon the route of infection but one form of the disease may progress to another, or the disease might run a chronic relapsing course. Four clinical forms are generally described: localised infection, pulmonary infection, septicaemia and chronic suppurative infections of the skin. All treatment recommendations should be adapted according to the susceptibility reports from any isolates obtained. Post-exposure prophylaxis with trimethoprim-sulfamethoxazole is recommended in
case of a biological attack. There is no vaccine available for humans.
PMID: 15677841 [PubMed - as supplied by publisher]

27: Euro Surveill. 2004 Dec 01;9(12) [Epub ahead of print]
Bichat guidelines for the clinical management of Q fever and bioterrorism-related Q fever.
Bossi P, Tegnell A, Baka A, van Loock F, Werner A, Hendriks J, Maidhof H, Gouvras G.
Taskforce on Bioterrorism (BICHAT), Public Health Directorate, European Commission, Luxembourg.
e in the case of a bioterrorist attack.

PMID: 15677840 [PubMed - as supplied by publisher]

28: Euro Surveill. 2004 Dec 01;9(12) [Epub ahead of print]
Bichat guidelines for the clinical management of viral encephalitis and bioterrorism-related viral encephalitis.
Bossi P, Tegnell A, Baka A, van Loock F, Werner A, Hendriks J, Maidhof H, Gouvras G.
Taskforce on Bioterrorism (BICHAT), Public Health Directorate, European Commission, Luxembourg.
Most of the viruses involved in causing encephalitis are arthropod-borne viruses, with the exception of arenaviruses that are rodent-borne. Even if little information is available, there are indications that, most of these encephalitis-associated viruses could be used by aerosolisation during a bioterrorist attack. Viral transfer from blood to the CNS through the olfactory
tract has been suggested. Another possible route of contamination is by vector-borne transmission such as infected mosquitoes or ticks. Alphaviruses are the most likely candidates for weaponisation. The clinical course of the diseases caused by these viruses is usually not specific, but differentiation is possible by using an adequate diagnostic tool. There is no effective drug
therapy for the treatment of these diseases and treatment is mainly supportive, but vaccines protecting against some of these viruses do exist.
PMID: 15677839 [PubMed - as supplied by publisher]

29: Homeopathy. 2004 Oct;93(4):173-8.
Rapid induction of protective tolerance to potential terrorist agents: a systematic review of low- and ultra-low dose research.
Szeto AL, Rollwagen F, Jonas WB.
Food and Drug Administration, Rockville, MD, USA.
OBJECTIVE: To systematically review the literature on the ability of low-dose (LD) and ultra-low-dose (ULD) toxin exposure to prevent and treat biological and chemical threats. METHODS: Laboratory research articles on protection or treatment from LD or ULD exposure for the 13 high-risk chemical and biological warfare threats were collected and systematically evaluated for quantity and scientific quality using pre-defined methodological criteria. RESULTS: Over 2600
articles were screened. Only five studies met the inclusion criteria examining stimulation and protective effects of LD- or ULD-exposures to the 13 pre-identified biological and chemical agents. The quality evaluation (QE) of these studies was above average with a mean QE score of 70.6% of maximum. Two articles of fair to good quality reported both protective and treatment efficacy from exposure of animals or humans to LD- and ULD-exposures to toxins of risk in
biochemical warfare. CONCLUSION: There is little research on agents of biological and chemical warfare investigating the possible use of LD- and ULD-toxins for protection and treatment. The existing literature is generally of good quality and indicates that rapid induction of protective tolerance is a feasible but under-investigated approach to bioterrorist or biowarfare defense.
In our opinion, further research into the role of induced protection with LD- and ULD-toxic agents is needed.
Publication Types: Review
PMID: 15532694 [PubMed - indexed for MEDLINE]

30: ILAR J. 2005;46(1):8-14.

Administrative issues related to infectious disease research in the age of bioterrorism.
Jaax J.
Research Compliance, Kansas State University, Manhattan, Kansas, USA.
The recent unprecedented growth in infectious disease research funding andinfrastructure has resulted in part from an outgrowth of concern about newly emerging and re-emerging diseases and the progressive development of antibiotic-resistant pathogens. However, the most compelling impetus is the suspected and demonstrated capability and will of unknown individuals, groups, or states to use biological agents and/or toxins as weapons. Although the actual number of known victims and fatalities from bioterrorism in the United States has been miniscule compared with many other daily hazards, biological agents have the potential to cause human mass casualties, severely damage segments of our economy or agricultural infrastructure, poison or compromise our food or water supply, and, perhaps most damaging, disrupt our society physically and psychologically. The significant institutional commitment necessary to participate in infectious disease research is described, with a focus on programs that involve research with pathogens thought to have potential for use by bioterrorists. Administrative considerations are described, and include obtaining necessary research funding to offset high operating costs; complying with "select agent" regulations, security screening of employees; building or renovating a biocontainment facility; finding skilled professional and technical manpower; providing adequate physical security in a threat environment; conducting targeted training; overcoming potential internal and external dissent; developing and/or providing sufficient occupational health and safety programs; achieving and maintaining compliance standards in a fluid regulatory environment; mitigating potentially hazardous working conditions; understanding personal and institutional liability; and reassuring and dealing with a concerned, skeptical, or even hostile public.
PMID: 15644559 [PubMed - in process]

31: Int Immunopharmacol. 2004 Mar;4(3):437-45.
Sulfur mustard primes phagocytosis and degranulation in human polymorphonuclear leukocytes.
Vavra AK, Laurent CJ, Ngo V, Sweeney JF, Levitt JM.
Michael E. DeBakey Department of Surgery, Baylor College of Medicine, VAMC Building 110, Research Line 151, 2002 Holcombe Blvd., Houston, TX 77030, USA.
Sulfur mustard (2,2'-bis-chloroethyl-sulfide; SM) is a chemical warfare vesicant that causes debilitating skin lesions. Although a great deal of work has focused on the direct effects of SM exposure on the epithelium, it is unclear how much the inflammatory response, induced by exposure, contributes to lesion pathogenesis. Keratinocytes exposed to SM express a number of inflammatory mediators and elicit a cellular infiltrate consisting largely of polymorphonuclear leukocytes (PMN). PMN infiltration into SM lesions occurs as early as 30 min and peaks after several hours postexposure, and, despite the relatively short half-life of SM, PMN infiltrating a lesion could be exposed to micromolar concentrations of the agent. Previously, we have shown that exposure to low doses of sulfur mustard prime oxidative function in human PMN. The current study was undertaken to evaluate the effects of low-dose SM exposure on PMN phagocytosis, degranualtion and chemotaxis. PMN exposed to low doses of SM (50-200 microM) showed a dose-dependent enhancement of phagocytic function. Exocytosis of PMN azurophilic and specific granules [determined by analysis of

granule-specific intravesicular receptors, Interleukin 10 receptor (IL-10R) and CD63] was also enhanced by SM exposure. Finally, we examined the effect of SM as a chemoattractant for PMN and show that SM is not itself a chemotaxin. These results suggest that SM injury may, in part, be caused by normal inflammatory function, and that therapeutic strategies aimed at down-regulating PMN activation could lessen the severity of SM injury and the time required for its resolution.
PMID: 15037221 [PubMed - indexed for MEDLINE]

32: J Am Vet Med Assoc. 2004 Nov 15;225(10):1509-10.
AVMA leadership holds listening session in nation's capital.
Stock R, Rushin G.
Publication Types: Congresses News
PMID: 15568373 [PubMed - indexed for MEDLINE]

33: J Appl Toxicol. 2004 Sep-Oct;24(5):315-6.
Developing advanced toxicology technologies for biomonitoring in national security applications.
Rudolph AS, Coughlin JR.
Publication Types: Editorial
PMID: 15478187 [PubMed - indexed for MEDLINE]

34: J Appl Toxicol. 2004 Sep-Oct;24(5):317-21.
EILATox-Oregon Biomonitoring Workshop: summary and observations.
Pancrazio JJ, McFadden PN, Belkin S, Marks RS.
Center for Bio/Molecular Science and Engineering, Code 6900, US Naval Research Laboratory, Washington, DC 20375, USA.
Publication Types: Congresses
PMID: 15478184 [PubMed - indexed for MEDLINE]

35: J Appl Toxicol. 2004 Sep-Oct;24(5):371-7.
Detection and classification of threat agents via high-content assays of mammalian cells.
Tencza SB, Sipe MA.
Cellomics Inc., 100 Technology Drive, Pittsburgh, PA 15219, USA.
One property common to all chemical or biological threat agents is that they damage mammalian cells. A threat detection and classification method based on the effects of compounds on cells has been developed. This method employs high-content screening (HCS), a concept in drug discovery that enables those who practice cell-based assays to generate deeper biological information about the compounds they are testing. A commercial image-based cell screening platform comprising fluorescent reagents, automated image acquisition hardware, image analysis algorithms, data management and informatics was used to develop assays and detection/classification methods for threat agents. These assays measure a cell's response to a compound, which may include activation or inhibition of signal transduction pathways, morphological changes or cytotoxic effects. Data on cell responses to a library of compounds was collected and used as a training set. At the EILATox-Oregon Workshop, cellular responses following exposure to unknown samples were measured by conducting assays of p38 MAP kinase, NF-kappaB, extracellular-signal related kinase (ERK) MAP kinase, cyclic AMP-response element binding protein (CREB), cell permeability, lysosomal mass and nuclear morphology. Although the assays appeared to perform well, only four of the nine toxic samples were detected. However the system was specific, because no false

positives were detected. Opportunities for improvement to the system were identified during the course of this enlightening workshop. Some of these improvements were applied in subsequent tests in the Cellomics laboratories, resulting in a higher level of detection. Thus, an HCS approach was shown to have potential in detecting threat agents, but additional work is necessary to make this a comprehensive detection and classification system. Copyright (c) 2004 John Wiley & Sons, Ltd.
PMID: 15478183 [PubMed - indexed for MEDLINE]

36: J Appl Toxicol. 2004 Sep-Oct;24(5):323-6.
Sensitivity evaluation of the Daphtoxkit and Thamnotoxkit microbiotests on blind samples.
Torokne A.
National Institute of Environmental Health, PO Box 26, Budapest, Hungary H-1450. toroka@okk.antsz.hu
At the Oregon State University Workshop we utilized two "culture/maintenance-free" microbiotests, the Thamnotoxkit F with the anostracan crustacean Thamnocephalus platyurus and the Daphtoxkit F magna with the cladoceran crustacean Daphnia magna, to determine the toxicity of water samples in a blind format. The Thamnotoxkit was applied to 7 samples and the Daphtoxkit to 12 samples. The chemical composition of the water samples to which the Toxkit microbiotests had been applied was disclosed a posteriori by the organizers and appeared to contain chlordimeform, colchicine, phosdrin, mercuric chloride, sodium arsenite, metham sodium, sodium cyanide, trimethylol propane phosphate, p-chlorophenol and a natural sediment sample containing mercury. Three of the water samples were blanks that had not been spiked with chemicals. No false positives were obtained with the two Toxkits and all the toxic waters were earmarked as such by the microbiotests, except trimethylol propane phosphate, which was not found to induce acute effects in Daphnia magna in the non-diluted water sample containing 100 mg l(-1) of this compound.
Publication Types: Evaluation Studies
PMID: 15478177 [PubMed - indexed for MEDLINE]

37: J Appl Toxicol. 2004 Sep-Oct;24(5):379-85.
Cultured neuronal networks as environmental biosensors.
O'Shaughnessy TJ, Gray SA, Pancrazio JJ.
Center for Bio/Molecular Science and Engineering, Code 6900, Naval Research Laboratory, Washington, DC 20375, USA. tjo@cbmse.nrl.navy.mil
Contamination of water by toxins, either intentionally or unintentionally, is a growing concern for both military and civilian agencies and thus there is a need for systems capable of monitoring a wide range of natural and industrial toxicants. The EILATox-Oregon Workshop held in September 2002 provided an opportunity to test the capabilities of a prototype neuronal network-based biosensor with unknown contaminants in water samples. The biosensor is a portable device capable of recording the action potential activity from a network of mammalian neurons grown on glass microelectrode arrays. Changes in the action potential fi ring rate across the network are monitored to determine exposure to toxicants. A series of three neuronal networks derived from mice was used to test seven unknown samples. Two of these unknowns later were revealed to be blanks, to which the neuronal networks did not respond. Of the fi ve remaining unknowns, a significant change in network activity was detected for four of the compounds at concentrations below a lethal level for humans: mercuric chloride,

sodium arsenite, phosdrin and chlordimeform. These compounds--two heavy metals, an organophosphate and an insecticide--demonstrate
the breadth of detection possible with neuronal networks. The results generated at the workshop show the promise of the neuronal network biosensor as an environmental detector but there is still considerable effort needed to produce a device suitable for routine environmental threat monitoring.
PMID: 15478174 [PubMed - indexed for MEDLINE]

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Preparedness: a healthcare provider's role....
Leibowitz RP, Williams CB, Harville D.
First Respnoders Ed, Inc., USA.
PMID: 15658198 [PubMed - indexed for MEDLINE]

39: JEMS. 2005 Jan;30(1):70-81.
Bioterrorism: EMS response to deadly infections.
Miller GT, Scott JA, Brotons AA, Frometa O, Gordon DL.
Division of Emergency Medicine, Center for Research in Medical Education,University of Miami School of Medicine, Miami, FL, USA.
PMID: 15662346 [PubMed - in process]

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Comment on:
Lancet. 2004 Jul 31;364(9432):393-5.
Lancet. 2004 Jul 31;364(9432):449-52.
Clinical predictors of bioterrorism-related inhalational anthrax.
Tepper M, Whitehead J.
Publication Types: Comment Letter
PMID: 15652600 [PubMed - indexed for MEDLINE]

41: Lancet. 2005 Jan 15;365(9455):214-5; author reply 215.
Comment on:
Lancet. 2004 Jul 31;364(9432):449-52.
Clinical predictors of bioterrorism-related inhalational anthrax.
Gair R.
Publication Types: Comment Letter
PMID: 15652599 [PubMed - indexed for MEDLINE]

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[No authors listed]
Publication Types: Editorial
PMID: 15296934 [PubMed - indexed for MEDLINE]

43: Mil Med. 2004 Dec;169(12):958-61.
Environmental mimics of chemical warfare agents.
Claborn DM.
Navy Disease Vector Ecology and Control Center, Naval Air Station, Box 43, Jacksonville, FL 32212-0043, USA.
There are several natural and artificial factors that mimic the effects of chemical warfare agents, thereby causing unwarranted alarm and confusion on the battlefield. Symptoms associated with chemical warfare include paralysis, muscle tremors,

heavy salivation, severe burns, blistering, and corrosive skin injuries among others. Similar symptoms can be produced from a variety of environmental sources, artificial and natural. This article reviews several published and unpublished examples of environmental factors that produce syndromes similar to those caused by these agents. Examples of such mimics include pesticides, blistering exudates from insects and plants, various types of bites, and naturally occurring diseases. The potential for confusion caused by these factors is discussed and means of discriminating between warfare agents and naturally occurring events are identified. Recommendations for the use of this information and for needed research are also discussed.
PMID: 15646185 [PubMed - indexed for MEDLINE]

44: MMWR Recomm Rep. 2005 Jan 14;54(RR-1):1-24.
Case definitions for chemical poisoning.
Belson MG, Schier JG, Patel MM; CDC.
Division of Environmental Hazards and Health Effects National Center for Environmental Health, USA.
mbelson@cdc.gov
When human illness results from an unintentional or intentional release of a toxin (chemicals produced by metabolism in an organism [e.g., ricin]) or a toxicant (natural or synthetic chemicals not metabolically produced by an organism [e.g., nerve agents]) into the environment, uniform reporting is necessary to direct appropriate resources, assess the extent of morbidity and mortality, track poisoned persons, and monitor response to intervention. In this report, CDC presents case definitions to facilitate uniform reporting among local, state, and federal public health agencies of illness resulting from a chemical release. The report also explains the rationale for the structure of the case definitions, the audience for whom it is intended, the setting in which the case definitions might be used, and reasons each chemical presented in the report was selected. Clinical knowledge and diagnostic tools (e.g., biologic laboratory tests) for detecting chemical poisoning are likely to improve over time. CDC will create new case definitions and revise existing definitions to meet the needs related to emerging threats and to enhance case definition sensitivity and specificity, when possible, with developing clinical information.
PMID: 15660014 [PubMed - indexed for MEDLINE]

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Herrera S.
Publication Types: News
PMID: 15229526 [PubMed - indexed for MEDLINE]

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Applying rapid microbiology techniques in the war against bioterrorism.
Costello C, Moldenhauer J.
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PMID: 15663058 [PubMed - in process]

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Post-traumatic stress disorder symptoms in victims of Tokyo subway attack: a 5-year follow-up study.

Ohtani T, Iwanami A, Kasai K, Yamasue H, Kato T, Sasaki T, Kato N.
Department of Psychiatry, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan.
Sarin gas was dispersed in a Tokyo subway in 1995. This study investigates the mental and somatic symptoms of the 34 victims 5 years after the attack. Structured interviews (Clinician-Administered Post-Traumatic Stress Disorder [CAPS] and Mini International Neuropsychiatric Interview) and self-rating questionnaires were used to assess the symptoms. Not only post-traumatic stress disorder (PTSD) but also non-specific mental symptoms persisted in the victims
at a high rate. A total of 11 victims were diagnosed with current or lifetime PTSD according to CAPS. Victims with PTSD showed higher anxiety levels and more visual memory impairment. A significant correlation between the total score of Impact of Event Scale-Revised (IES-R) and CAPS was found, indicating that IES-R is a useful tool for evaluating PTSD.
PMID: 15601387 [PubMed - indexed for MEDLINE]

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Preventive vaccines against bioterrorism: evaluation of efficacy and safety.
Horne AD, Clifford J, Goldenthal KL, Kleppinger C, Lachenbruch PA.
Division of Biostatistics, Office of Biostatistics and Epidemiology, Center for Biologics Evaluation and Research (CBER), FDA, HFM-217, 1401 Rockville Pike, Rockville, MD 20852-1448, USA. horne@cber.fda.gov
This paper discusses the US Food and Drug Administration's approach to evaluation of vaccines in general, and vaccines against diseases of bioterrorism in particular. We summarize the scientific bases for development and approval of vaccines and then discuss specific issues regarding vaccines against disease organisms that could potentially be used as weapons of bioterrorism.
Publication Types: Review Review, Tutorial
PMID: 15519711 [PubMed - indexed for MEDLINE]

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ChemiNet: a global public health chemical incident alert, surveillance and response network.
[Article in English, French]
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